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003/030

10/822,582

IN THE SPECIFICATION

Please substitute the following paragraphs for the corresponding paragraphs being amended.

[Title beginning at page 1, line 1]

SECURITY LABELLING OPTICALLY DETECTABLE SECURITY FEATURE

[Paragraph beginning at page 6, line 7]

According to a seventh aspect of the invention, there is provided a security marker comprising a borosilicate based glass, preferably including SiO₂; Na₂O; CaO; MgO; Al₂O₃ 0.29; FeO and/or Fe₂O₃; K₂O, and B₂O₃, and a rare earth dopant, preferably a lanthanide. Preferably the glass has a composition of: SiO₂ 51.79 wt%; Na₂O 9.79 wt%; CaO 7.00 wt%; MgO 2.36 wt%; Al₂O₃ 0.29 wt%; FeO, Fe₂O₃ 0.14 wt%; K₂O 0.07 wt%, and B₂O₃ 28.56 wt%, not precluding the use of other glass mixes. The glass and the rare earth ion may be formed into a micro-bead.

[Paragraph beginning at page 7, line 14]

An example of a glass that could be used as the carrier material for the rare earth dopants is a borosilicate based glass. In particular, a glass that could be used is as follows: SiO₂ 51.79 wt%; Na₂O 9.79 wt%; CaO 7.00 wt%; MgO 2.36 wt%; Al₂O₃ 0.29 wt%; FeO, Fe₂O₃ 0.14 wt%; K₂O 0.07 wt%, and B₂O₃ 28.56 wt%. This can be made by ball milling soda lime beads (100µm) for 5 minutes to create a powder to help melting and mixing. Then 5g of the crushed soda lime beads, 2g of the B₂O₃ and 3mol% of the rare earth dopant, for example Europium, Dysprosium and Terbium but also others, are ball milled together for, for example, 3 minutes. The resulting powder is then put in a furnace and heated up to 550C. It is left in the furnace at this temperature for about 30 minutes, to ensure that the boric oxide is completely melted. Then the temperature is increased to 1100C for 1 hour to produce a homogeneous melt. The temperature is increased again to 1250C and the molten glass is poured into a brass mould, which is at room temperature, which quenches the glass to form a transparent, bubble free

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borosilicate glass, doped with a rare earth ion.

[Title beginning at page 14, line 1]

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